Certificate Number: Q10561

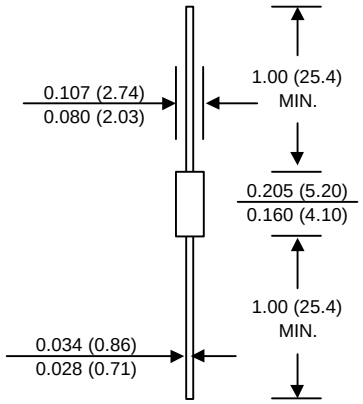
Certificate Number: E17276

SA5.0C - SA170CA

BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR

V_{BR} : 6.8 - 200 Volts
P_{PK} : 500 Watts

DO - 41



Dimensions in inches and (millimeters)

FEATURES :

* 500W surge capability at 1ms
* Excellent clamping capability
* Low zener impedance
* Fast response time : typically less then 1.0 ps from 0 volt to $V_{BR(min.)}$
* Typical I_R less then 1μA above 10V
* Pb / RoHS Free

MECHANICAL DATA

* Case : DO-41 Molded plastic
* Epoxy : UL94V-O rate flame retardant
* Lead : Axial lead solderable per MIL-STD-202, method 208 guaranteed
* Mounting position : Any
* Weight : 0.339 gram

DEVICES FOR UNIPOLAR APPLICATIONS

For uni-directional without "C"
Electrical characteristics apply in both directions

MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak Power Dissipation at Ta = 25 °C, Tp=1ms (Note1)	P_{PK}	Minimum 500	W
Steady State Power Dissipation at T_L = 75 °C Lead Lengths 0.375", (9.5mm) (Note 2)	P_D	3.0	W
Operating and Storage Temperature Range	TJ, TSTG	- 65 to + 175	°C

Note :

(1) Non-repetitive Current pulse, per Fig. 2 and derated above Ta = 25 °C per Fig. 1

ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

TYPE	Breakdown Voltage @ It (Note 1)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Reverse Current	Maximum Clamping Voltage @ I_{RSM}	Maximum Voltage Temperature Variation of V_{BR}
	V_{BR} (V)		It	V_{RWM}	I_R	I_{RSM}	V_{RSM}	
	Min.	Max.	(mA)	(V)	(µA)	(A)	(V)	(mV / °C)
SA5.0C	6.40	7.3	10	5.0	1200	52.0	9.6	5.0
SA5.0CA	6.40	7.25	10	5.0	1200	54.3	9.2	5.0
SA6.0C	6.67	8.15	10	6.0	1200	43.9	11.4	5.0
SA6.0CA	6.67	7.37	10	6.0	1200	48.5	10.3	5.0
SA6.5C	7.22	8.82	10	6.5	800	40.7	12.3	5.0
SA6.5CA	7.22	7.98	10	6.5	800	44.7	11.2	5.0
SA7.0C	7.78	9.51	10	7.0	300	37.8	13.3	6.0
SA7.0CA	7.78	8.60	10	7.0	300	41.7	12.0	6.0
SA7.5C	8.33	10.2	1.0	7.5	100	35.0	14.3	7.0
SA7.5CA	8.33	9.21	1.0	7.5	100	38.8	12.9	7.0
SA8.0C	8.89	10.9	1.0	8.0	50	33.3	15.0	7.0
SA8.0CA	8.89	9.30	1.0	8.0	50	36.7	13.6	7.0
SA8.5C	9.44	11.5	1.0	8.5	10	31.4	15.9	8.0
SA8.5CA	9.44	10.4	1.0	8.5	10	34.7	14.4	8.0
SA9.0C	10.0	12.2	1.0	9.0	2.0	29.5	16.9	9.0
SA9.0CA	10.0	11.1	1.0	9.0	2.0	32.5	15.4	9.0
SA10C	11.1	13.6	1.0	10.0	2.0	26.6	18.8	10.0
SA10CA	11.1	12.3	1.0	10.0	2.0	29.4	17.0	10.0
SA11C	12.2	14.9	1.0	11.0	1.0	24.9	20.1	11.0
SA11CA	12.2	13.5	1.0	11.0	1.0	27.4	18.2	11.0
SA12C	13.3	16.3	1.0	12.0	1.0	22.7	22.0	12.0
SA12CA	13.3	14.7	1.0	12.0	1.0	25.1	19.9	12.0
SA13C	14.4	17.6	1.0	13.0	1.0	21.0	23.8	13.0
SA13CA	14.4	15.9	1.0	13.0	1.0	23.2	21.5	13.0
SA14C	15.6	19.1	1.0	14.0	1.0	19.4	25.8	14.0
SA14CA	15.6	17.2	1.0	14.0	1.0	21.5	23.2	14.0
SA15C	16.7	20.4	1.0	15.0	1.0	18.8	26.9	16.0
SA15CA	16.7	18.5	1.0	15.0	1.0	20.6	24.4	16.0
SA16C	17.8	21.8	1.0	16.0	1.0	17.6	28.8	19.0
SA16CA	17.8	19.7	1.0	16.0	1.0	19.2	26.0	17.0
SA17C	18.9	23.1	1.0	17.0	1.0	16.4	30.5	20.0
SA17CA	18.9	20.9	1.0	17.0	1.0	18.1	27.6	19.0
SA18C	20.0	24.4	1.0	18.0	1.0	15.5	32.2	21.0
SA18CA	20.0	22.1	1.0	18.0	1.0	17.2	29.2	20.0
SA20C	22.2	27.1	1.0	20.0	1.0	13.9	35.8	25.0
SA20CA	22.2	24.5	1.0	20.0	1.0	15.4	32.4	23.0
SA22C	24.4	29.8	1.0	22.0	1.0	12.7	39.4	28.0
SA22CA	24.4	26.9	1.0	22.0	1.0	14.1	35.5	25.0
SA24C	26.7	32.6	1.0	24.0	1.0	11.6	43.0	31.0
SA24CA	26.7	29.5	1.0	24.0	1.0	12.8	38.9	28.0
SA26C	28.9	35.3	1.0	26.0	1.0	10.7	46.6	31.0
SA26CA	28.9	31.9	1.0	26.0	1.0	11.9	42.1	30.0
SA28C	31.1	38.0	1.0	28.0	1.0	9.9	50.0	35.0
SA28CA	31.1	34.4	1.0	28.0	1.0	11.0	45.4	31.0
SA30C	33.3	40.7	1.0	30.0	1.0	9.3	53.5	39.0
SA30CA	33.3	36.8	1.0	30.0	1.0	10.3	48.4	36.0
SA33C	36.7	44.9	1.0	33.0	1.0	8.5	59.0	42.0
SA33CA	36.7	40.6	1.0	33.0	1.0	9.4	53.3	39.0

ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

TYPE	Breakdown Voltage @ It (Note 1)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Reverse Current	Maximum Clamping Voltage @ I_{RSM}	Maximum Voltage Temperature Variation of V_{BR}
	V_{BR} (V)		It	V_{RWM}	I_R	I_{RSM}	V_{RSM}	
	Min.	Max.	(mA)	(V)	(μA)	(A)	(V)	(mV / °C)
SA36C	40.0	48.9	1.0	36.0	1.0	7.8	64.3	46.0
SA36CA	40.0	44.2	1.0	36.0	1.0	8.6	58.1	41.0
SA40C	44.4	54.3	1.0	40.0	1.0	7.0	71.4	51.0
SA40CA	44.4	49.1	1.0	40.0	1.0	7.8	64.5	46.0
SA43C	47.8	58.4	1.0	43.0	1.0	6.5	76.7	55.0
SA43CA	47.8	52.8	1.0	43.0	1.0	7.2	69.4	50.0
SA45C	50.0	61.1	1.0	45.0	1.0	6.2	80.3	58.0
SA45CA	50.0	55.3	1.0	45.0	1.0	6.9	72.7	52.0
SA48C	53.3	65.1	1.0	48.0	1.0	5.8	85.5	63.0
SA48CA	53.3	58.9	1.0	48.0	1.0	6.5	77.4	56.0
SA51C	56.7	69.3	1.0	51.0	1.0	5.5	91.1	66.0
SA51CA	56.7	62.7	1.0	51.0	1.0	6.1	82.4	61.0
SA54C	60.0	73.3	1.0	54.0	1.0	5.2	96.3	71.0
SA54CA	60.0	66.3	1.0	54.0	1.0	5.7	87.1	65.0
SA58C	64.4	78.7	1.0	58.0	1.0	4.9	103	78.0
SA58CA	64.4	71.2	1.0	58.0	1.0	5.3	93.6	70.0
SA60C	66.7	81.5	1.0	60.0	1.0	4.7	107	80.0
SA60CA	66.7	73.7	1.0	60.0	1.0	5.2	96.8	71.0
SA64C	71.1	86.9	1.0	64.0	1.0	4.4	114	86.0
SA64CA	71.1	78.6	1.0	64.0	1.0	4.9	103	76.0
SA70C	77.8	95.1	1.0	70.0	1.0	4.0	125	94.0
SA70CA	77.8	86.0	1.0	70.0	1.0	4.4	113	85.0
SA75C	83.3	102	1.0	75.0	1.0	3.7	134	101
SA75CA	83.3	92.1	1.0	75.0	1.0	4.1	121	91.0
SA78C	86.7	106	1.0	78.0	1.0	3.6	139	105
SA78CA	86.7	95.8	1.0	78.0	1.0	4.0	126	95.0
SA85C	94.4	115	1.0	85.0	1.0	3.3	151	114
SA85CA	94.4	104	1.0	85.0	1.0	3.6	137	103
SA90C	100	122	1.0	90.0	1.0	3.1	160	121
SA90CA	100	111	1.0	90.0	1.0	3.4	146	110
SA100C	111	136	1.0	100	1.0	2.8	179	135
SA100CA	111	123	1.0	100	1.0	3.1	162	123
SA110C	122	149	1.0	110	1.0	2.6	196	148
SA110CA	122	135	1.0	110	1.0	2.8	177	133
SA120C	133	163	1.0	120	1.0	2.3	214	162
SA120CA	133	147	1.0	120	1.0	2	193	146
SA130C	144	176	1.0	130	1.0	2.2	231	175
SA130CA	144	159	1.0	130	1.0	2.4	209	158
SA150C	167	204	1.0	150	1.0	1.9	268	203
SA150CA	167	185	1.0	150	1.0	2.1	243	184
SA160C	178	218	1.0	160	1.0	1.7	287	217
SA160CA	178	197	1.0	160	1.0	1.9	259	196
SA170C	189	231	1.0	170	1.0	1.6	304	230
SA170CA	189	209	1.0	170	1.0	1.8	275	208

Note:

(1) V_{BR} measured after It applied for 300 μs., It = square wave pulse or equivalent.

RATING AND CHARACTERISTIC CURVES (SA5.0C - SA170CA)

FIG.1 - PULSE DERATING CURVE

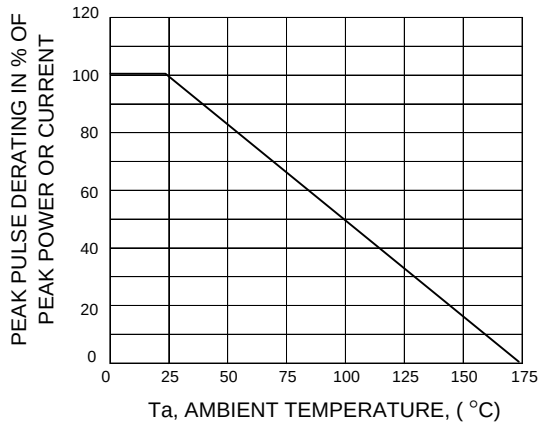


FIG.2 - PULSE WAVEFORM

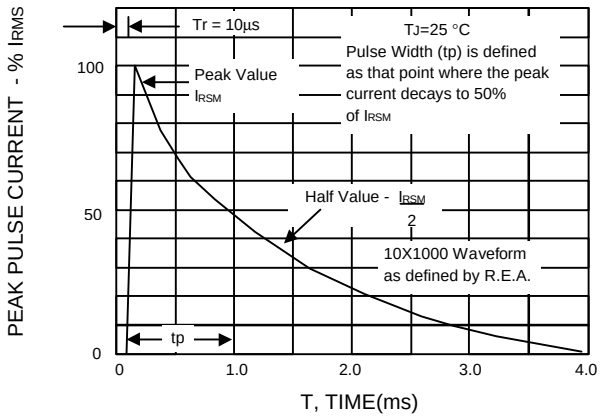


FIG.3 - STEADY STATE POWER DERATING

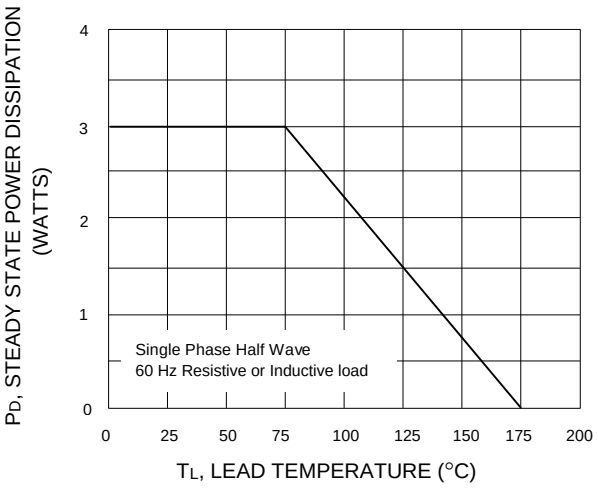


FIG.4 - PULSE RATING CURVE

